

# INDUS GT™

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GT Albert E. Spreadsheet  
for Commodore

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**GT Albert E. Spreadsheet**

**by**

**William Boffi**

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## STARTING OUT

1. The GT Albert E. Spreadsheet requires a minimum 16K Expander for use on the VIC-20. Be sure you have power OFF before inserting your expander. No expander is required if using the Commodore 64 of course.
2. Turn power ON your disk drive and then your computer.
3. Insert the GT Albert E. Spreadsheet diskette in your drive and close the door.
4. Type: LOAD "GTCALC",8,1
5. Remove your GT Albert E. Spreadsheet diskette from the drive and store it away. Follow the directions in the guide for using the program you have selected.

## What is the GT Albert E. Spreadsheet

### General

The GT Albert E. Spreadsheet is an electronic spreadsheet designed for use on the expanded VIC 20 and Commodore 64 computers. It can be used for any application at home or in business which would require the use of an accounting spreadsheet.

The GT Albert E. Spreadsheet is designed to automatically adapt to the screen and memory size of the VIC 20 and Commodore 64.

### Features

- \* Function Key Selection of Simple One Stroke Commands
- \* Titling for the Spreadsheet, Rows and Columns
- \* Automatic Recalculation (or No Calculation -- Optional)
- \* Easy Entry of Numeric Data
- \* Use of the Cursor Control Keys
- \* GOTO Control of Cursor for Quick Movement
- \* Printer Output for Hard Copy Reports
- \* Saving of Spreadsheet to Disk or Tape
- \* 10 Calculation Functions --
  - Add
  - Subtract
  - Multiply
  - Divide
  - Percent
  - Percent Change
  - Total
  - Average
  - High
  - Low
- \* Back Out of Error Entries Using INST/DEL Key
- \* Choice of Formats for Numeric Data on Screen and Printer

## GT Albert E. Spreadsheet Specifications

### Screen and Spreadsheet Size

The GT Albert E. Spreadsheet runs on the VIC 20 with 16K or more, and on the Commodore 64. The size of the spreadsheet and the number of columns visible on the screen are:

	# Rows -----	# Columns -----	Visible Columns -----
VIC 20 with 16K Expander	26	20	2
VIC 20 with more than 16K	35	50	2
Commodore 64	35	99	4

Each spreadsheet column is 8 characters wide. Each Row name is 4 characters wide. Each Column name is 5 characters wide.

### Numeric Data Representation

The range of numbers the GT Albert E. Spreadsheet can accept and display are:

1. Entry (f5): Numbers greater than or equal to -9,999,999  
Numbers less than or equal to 99,999,999
2. Result of Calculation (f7): Numbers greater than or equal to -999,999M  
Numbers less than or equal to 9,999,999M  
(M = million)
3. Constant (#): Numbers greater than or equal to -999.99  
Numbers less than or equal to 999.99

Any number which exceeds the limits in (2) above will result in an **ERROR** message being displayed in place of that number.

## Using the GT Albert E. Spreadsheet

### A Self-Teaching Guide

This section will take you step-by-step through the use of the GT Albert E. Spreadsheet. It begins with a description of how to LOAD the system, what the GT Albert E. Spreadsheet's screen looks like, and goes right through each of the functions available in the GT Albert E. Spreadsheet.

Before you start, here are a few points to consider:

- (1) Remember, the GT Albert E. Spreadsheet program is a spreadsheet. Try to imagine using your computer and the GT Albert E. Spreadsheet in place of a pencil and an accounting pad.
- (2) To do anything with the GT Albert E. Spreadsheet, you must use the special program function keys located on the right side of the keyboard. Pressing one of these keys enables you to perform the functions which that key accesses.
- (3) Just as in using a pad and pencil, you'll probably make mistakes when using the GT Albert E. Spreadsheet. Occasionally, you'll press the wrong function key or the data you enter will be wrong. The INST/DEL key is your correction and escape mechanism. Use it to exit from a function, to correct entry errors, and to back out of various options. Don't be frustrated when making an error or two; the GT Albert E. Spreadsheet is programmed to help you out of problems.
- (4) Once you've completed this section, you'll have enough background to do some spreadsheeting on your own. The FUNCTION SUMMARY at the end of this manual is for your reference. There are rules and limitations on some functions. You may need to refer to the FUNCTION SUMMARY often.

Now let's use the GT Albert E. Spreadsheet!

#### 1. Loading the System

Turn the power on your disk drive and then your computer. Place the GT Albert E. Spreadsheet diskette into your disk drive and close the door. Type LOAD "GTCALC", 8,1 and then press RETURN. On the Commodore 64 the screen will go blank until the GT Albert E. Spreadsheet file is found (GTCALC). Then it will state LOADING GTCALC.

#### 2. Title Page

Once the GT Albert E. Spreadsheet is loaded, type RUN and press RETURN. A title page will appear briefly, then the screen will go blank for a few seconds; the GT Albert E. Spreadsheet is setting itself up.

#### 3. The Screen

The screen will be formatted as follows:

M	01	02	03	04
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				
K				
L				
M				

The GT Albert E. Spreadsheet Screen

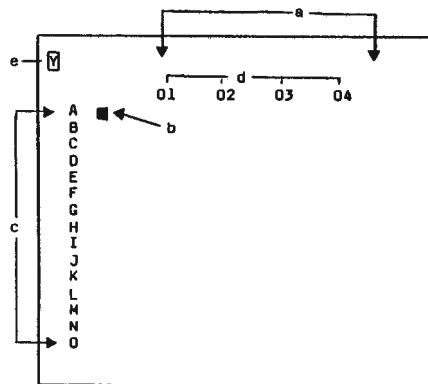
#### 4. The Snapshot

We'll call the screen the "snapshot" because it is a picture of 15 rows and 4 columns (2 columns on the VIC 20). The snapshot always pictures 15 rows and 4 (or 2) columns, but the picture will scroll up or down, right or left, to the full width and length of the spreadsheet.

The snapshot contains the following:

- a. Message Area

- b. The Cursor (checkerboard graphic character)
- c. Row Labels (A -- O)
- d. Column Labels (01 -- 04)
- e. Special Function Indicators



"The Snapshot"

- \* The Message Area is the top portion of the screen where messages between you and the GT Albert E. Spreadsheet are written.
- \* The Cursor is the pointer to the row, column, or element which is being entered, calculated, or erased. It is directed by the cursor control keys -- CURSOR-UP, CURSOR-DOWN, CURSOR-RIGHT, CURSOR-LEFT, and CLR-HOME.

- \* Row Labels are reference points to identify each row. For instance, on the Commodore 64, there are 35 rows in the spreadsheet. They are labeled A, B, C.....Z and 1, 2, 3.....9. To the right of each row label, there are 4 characters reserved for you to use to name or title each row.
- \* Column Labels are reference points to identify each column. For example, the Commodore 64 can accommodate 99 columns, labeled 01 to 99. Just below each column label, there are 5 characters reserved for you to use to name or title each column.

- \* Special Function Indicators -- There are two special indicators:

The Auto Recalculation indicator simply lets you know whether the spreadsheet will be automatically recalculated or not.

The Numeric Format indicator identifies to the GT Albert E. Spreadsheet in what format numeric data is to be displayed:

\$ -- Dollars and Cents

(No \$ symbol)--As Many Significant Decimal Positions As Possible

## 5. Moving the Cursor Around

The cursor (the checkerboard symbol) can be moved around the spreadsheet in two ways:

- a. Cursor Control Keys

The best way to learn the GT Albert E. Spreadsheet is to try it. Press the CURSOR-DOWN a few times. The checkerboard cursor will move down as many rows. Press CURSOR-RIGHT a couple of times. The cursor moves right. Press CLR-HOME and the screen will clear and the cursor will return to where it started (Row A, Column 01).

- b. GOTO Function

When the spreadsheet has data in it, it becomes a little cumbersome to move the cursor using only the cursor control keys. The GT Albert E. Spreadsheet has a function called GOTO, which is activated by function key f6. GOTO moves the cursor directly to the row/column specified. Try it. Press f6. The words GOTO appear at the top left of the screen. A box

appears under the words GOTO. The GT Albert E. Spreadsheet is waiting for a 3-position row/column identifier to be entered. Type in Q16. The snapshot will automatically change to Row Q, Column 16.

Now press f6 again and type A01. The cursor will now be positioned back at A01. GOTO A01 works just like CLR-HOME.

Don't worry about putting in a wrong row or column. The GT Albert E. Spreadsheet will not accept a bad row or column label. If you happen to incorrectly press a key, just press INST/DEL key will also get you back to cursor control operation.

You now know how to move the cursor using the cursor control keys and the f6 key.

## 6. Entering and Calculating Data

Put the cursor back to A01 (Row A, Column 1). For ease in describing the next functions, a row/column combination will be called an element. Data can be entered into a single element, into a row, or into a column in two ways:

### a. Data Entry

Numeric data entry is triggered by pressing function key f5.

When the f5 key is pressed, a box appears in the message area of the screen. The GT Albert E. Spreadsheet is waiting for you to enter a 8-character number (which can include a minus sign (-) or a decimal point (.)). If the full 8 positions are filled, the GT Albert E. Spreadsheet does not wait for the RETURN key to be pressed. The number is placed in the 8 positions to the right of the cursor and the GT Albert E. Spreadsheet recalculates the spreadsheet (if the Auto recalculation switch is on). This recalculation is signaled by a "WORKING" message at the top of the screen. If the number you are entering is less than 8 characters, the RETURN key must be pressed to trigger the GT Albert E. Spreadsheet's entry/recalculation operation. When the GT Albert E. Spreadsheet is done with its entry and recalculation, it will wait for you to move the cursor or to perform another entry function or any of the other functions available.

Try entering a few elements in Column 01. Press f5, then type 12 and press RETURN. When the GT Albert E. Spreadsheet's working message

disappears, press the CURSOR-DOWN and then press f5 again. Now type 25 and RETURN. Press CURSOR-DOWN, then press f5 one more time and enter the number 67 and press RETURN. You have now used the Data Entry function.

If, in entering the data, you make a mistake, simply press INST/DEL and reenter the data. If you enter data in the wrong element, erase the data by entering the correct data over it or by pressing RETURN when the box appears at the top of the screen. RETURNing an empty box erases an element. INST/DEL is the error correction key and INST/DEL also returns the GT Albert E. Spreadsheet to the waiting mode.

### b. Calculating Data

The second way of placing data in an element, row, or column is by using the calculation function (function key f7). This function enables you to calculate an element, row, or column. The GT Albert E. Spreadsheet remembers row and column calculations so it can recalculate the spreadsheet. There are 10 calculations that the GT Albert E. Spreadsheet can perform:

- 1) Add
- 2) Subtract
- 3) Multiply
- 4) Divide
- 5) Percent
- 6) Percent Change
- 7) Total
- 8) Average
- 9) High
- 10) Low

In addition, there are 2 "hidden" commands which enable you to : (1) blank an entire row or column, or (2) to erase a row or column calculation from the GT Albert E. Spreadsheet's memory so that a specific row or column calculation is not performed during Auto recalculation.

Now let's define a simple application involving calculations for the GT Albert E. Spreadsheet to perform. Suppose we had a set of numbers to enter for which we want a total and an average.

The numbers are 20, 38, 40, and 57. First let's enter the data in Column 01. Position the cursor at A01. Press f5 to invoke the Data Entry function. Enter 20. Press RETURN. 20 appears at A01.

Press CURSOR-DOWN, then press f5; enter the number 38 and press RETURN. The number 38 appears in B01.

Press CURSOR-DOWN, then press f5; enter the number 40 and press RETURN. The number 40 appears in C01.

Press CURSOR-DOWN, then press f5; enter the number 57 and press RETURN. The number 57 appears in D01.

To take a total of these numbers, we'll use f7, the calculation function. Press CURSOR-DOWN, then press f7.

The message Row Column Element appears in the Message area of the screen. We'll enter R since we want to calculate the Row E.

Next, the message appears as follows:

Add Sub Mult Div Tot Avg Pct Chg High Low

Press T for Total.

A box will appear in the Message area. Since we've instructed the GT Albert E. Spreadsheet to total a list of rows, it is now waiting for the starting row. Type A.

The GT Albert E. Spreadsheet will type an S next to the A to tell you that a Sum is to be taken. This is the GT Albert E. Spreadsheet's way of verifying with you that the right operation is being performed. If the GT Albert E. Spreadsheet has not displayed an S, press INST/DEL twice and press T again, then A. A box appears next to the S. The GT Albert E. Spreadsheet is waiting for the ending row. Type D, since that's the last row in which we've entered data.

A WORKING message will appear in the Message area. The GT Albert E. Spreadsheet is calculating! When the GT Albert E. Spreadsheet is finished calculating, the results of the calculation will appear in E01.

Now move the cursor to F01. We'll tell the GT Albert E. Spreadsheet to take an average of the four numbers we entered. Press f7 to invoke the calculation function. Type R to the Row Column Element message; then type V (for aVerge) to the next message.

This command instructs the GT Albert E. Spreadsheet to perform the AVerage function.

Type A (the starting Row) in the first box. The GT Albert E. Spreadsheet will print an M (Mean) followed by another box. Type D (ending row) in the second box. The GT Albert E. Spreadsheet will perform the average function and place the result in F01.

Now move the cursor to F02 (press CURSOR-RIGHT). Let's multiply the column of numbers in 01 by 1.15. Here's how.

Press f7 to invoke the calculation function; then press C in response to the Row Column Element message.

Type M in response to the next message. M is for Multiply.

The GT Albert E. Spreadsheet will put a box in the Message area. This time the program is looking for a Column. Type 01. The GT Albert E. Spreadsheet will print \* next to the 01 and then another box. We want to multiply 01 by 1.15 (a constant). To tell the program to expect a constant, we use the #. Type #, then type 1.15 and RETURN.

We've instructed the GT Albert E. Spreadsheet to Multiply Column 1 by 1.15 and place the result in Column 02 (that's where the cursor is pointing). When the GT Albert E. Spreadsheet is finished calculating, the result should be placed in Column 02. Check it.

Notice that, in addition to performing the Multiplication, the GT Albert E. Spreadsheet also calculated the total and average of Row A through D for Column 02 -- the direction we gave in the first part of this exercise.

Now let's add Column 01 to Column 02 and place the result in Column 03.

First move the cursor to Column 03 (press CURSOR-RIGHT). Then press f7 to signal the GT Albert E. Spreadsheet that a calculation is to be performed.

Now, in order, type C for Column in response to the first message, then A for Add in response to the second message. Then type 01 to identify Column 01. The program will insert a plus (+) sign. Then type 02 for Column 02.

Again, the GT Albert E. Spreadsheet will perform the function specified and will remember the Row command given in the first Column.



NOTE: If, at any point, you make an error, use the INST/DEL key to correct or back out of that operation. Pressing the INST/DEL several times will back out of the calculation function completely.

Remember, the INST/DEL key corrects any entry errors by enabling you to start entering a new entry and it enables you to back out of an operation to the previous operation.

This exercise is intended to illustrate the power of the GT Albert E. Spreadsheet. To work with the GT Albert E. Spreadsheet, you must be familiar with all the options and functions.

A complete explanation of the entry and calculation options is available in the Function Summary section. At this point, you've practiced moving the cursor and entering (f5) and calculating (f7) data.

## 7. Titles

Now, let's see how to name or title each of the rows and columns and the spreadsheet. The function key used for Titles is f1. This function transfers the cursor from the elements in the spreadsheet to the column headings and row headings. Press f1. The cursor will disappear and the word Title will appear in the message area. A long box will appear below the word Title. The GT Albert E. Spreadsheet is waiting for up to 20 characters to be entered -- the title of the spreadsheet. Type in a name (20 characters or less) and press RETURN. If you make a mistake, use INST/DEL to correct it. The GT Albert E. Spreadsheet will ask you -- "ARE YOU SURE?". You have a chance to change the name by typing N -- otherwise, type Y. The name will disappear until you choose the next option. At that point, the GT Albert E. Spreadsheet will print your title at the top of the spreadsheet.

Next, the words Row or Column will appear. The GT Albert E. Spreadsheet wants to know what to title next. If you type R, it will position the cursor at the row heading of the row where the cursor was pointing before you pressed f1. If you press C, it will position the cursor at the column heading of the column where the cursor was pointing prior to entering the Title function. Press R. The cursor will be positioned at the row heading for Row F. The GT Albert E. Spreadsheet is now waiting for you to enter a row name for Row F. f5 signals to the GT Albert E. Spreadsheet that an entry is to be made. Press f5 and enter a name for Row F (4 or less characters). Remember that, if you enter 4 characters, there is no need to press RETURN. If you enter less than 4 characters, you must press RETURN to signal that the entry is complete. Also,

if you make an error in entering, INST/DEL will enable you to reenter. Pressing INST/DEL again will get you out of the Row Title option.

Press CURSOR-UP. The cursor will point at the Row heading E and the GT Albert E. Spreadsheet will wait for you to enter a name or to press CURSOR-UP or -DOWN or INST/DEL. Press f5 and enter a name for Row F. Do the same for Row D, C, B, and A. When you have named all the rows you wish to name, press INST/DEL to get back to the message Row or Column.

Press C. The cursor will be positioned at the column heading for Column 03. The GT Albert E. Spreadsheet is waiting for you to enter a name for Column 3. Press f5 and enter a name for Column 03 (5 characters or less). Then press RETURN. Now press CURSOR-LEFT, f5, and enter a name for Column 02. Do the same for Column 01. Then get back to the message Row or Column by pressing INST/DEL. Press INST/DEL again to get back to normal operation, all the row, column, and spreadsheet names you just specified are now part of your spreadsheet. If you wish to change row or column names, press f1 at any time and you'll be given the option to title row or columns as often as you wish.

Note that, after the first time through the Title option, the GT Albert E. Spreadsheet will not let you rename your spreadsheet using the f1 function. You will need to use the f2 key to do this.

One Final Note About Row And Column Titles. When in the Titling option, row and column headings and titles will scroll to enable you to enter as many as you need while you're in the titling function. In this mode, only the titles scroll; the spreadsheet does not. When you return to normal operation, the row and column headings and titles and the cursor will be positioned correctly.

## 8. Managing the Spreadsheet Data -- Function Key f3

Now that you can enter data, calculate rows, columns, or elements, and name your rows or columns, there is one more set of functions you need to know about to help you manage the spreadsheet and the data you create with the GT Albert E. Spreadsheet.

Pressing function key f3 activates the following options:

New - Erase the current spreadsheet and generate a brand new spreadsheet.

Load - Load a GT Albert E. Spreadsheet file in from disk or tape that has been previously created using the GT Albert E. Spreadsheet.

Save - Save a file to disk or tape.

Print- Print the spreadsheet 6 columns at a time.

Quit - Exit from the GT Albert E. Spreadsheet.

Although these functions are fairly self-explanatory, become familiar with just what each one does before trying to use them.

**New** By typing N, the GT Albert E. Spreadsheet generates a brand new spreadsheet. This option is used to clear the slate after a GT Albert E. Spreadsheet file has been saved and a new spreadsheet is needed. (Be careful using this option -- you could wipe away hours of work!). Before executing this option, the GT Albert E. Spreadsheet will ask -- "ARE YOU SURE?". A "Y" response brings you back to the f3 menu again.

**Load** This option is used to restore a saved spreadsheet and will prompt you as to its use. Be sure you have the right cassette or diskette in the drive before you type "Y" to the message, "IS THE DEVICE READY?" Also, the GT Albert E. Spreadsheet will ask for a spreadsheet name for which to search. Be sure to give the exact title of the spreadsheet you want loaded. The GT Albert E. Spreadsheet will ask -- "ARE YOU SURE?" -- giving you a chance to change the file name before executing the LOAD option.

**Save** This option will also prompt you. It is used to save a spreadsheet for future use.

Since data will be written using this option, be sure the right cassette or diskette is in the proper drive. The GT Albert E. Spreadsheet will save the spreadsheet using the title you gave in the Title function (f1). Make a note of that title. You'll need the exact spelling to load that file back in when you want to re-use it.

**Print** This option will display the entire spreadsheet on the printer. Do not use this option if no printer is attached to your system.

The GT Albert E. Spreadsheet will print the spreadsheet 6 columns at a time and as many rows as you have entered up to the highest row and column you have used. In printing the contents of your spreadsheet, the GT Albert E. Spreadsheet will display the data in

the format as specified by the Numeric format indicator. When the GT Albert E. Spreadsheet finishes printing, it will return to f3 menu and will wait for another command or the INST/DEL key.

**Quit** This option ends the program. Do not use it unless you're done and have saved your spreadsheet. If you are not done, respond "N" to the message, "ARE YOU SURE?"

## 9. Two Special Functions -- f4 and f8

You have gone through function keys f1 (Titles), f2 (New Spreadsheet Title), f3 (Function Menu), f5 (Enter Data), f6 (GOTO a location on the spreadsheet), and f7 (Calculate a Row, Column, or Element). The two remaining function keys f4 and f8 have special uses. Both are "toggle" switches. That is, these keys turn a special function on and off simply by pressing the key.

### f4 -- Numeric Format Function Key

This key controls how numeric data will be formatted on the screen. When a \$ is displayed in the Message area, all numeric data is rounded to two decimal positions and are shown on the screen in dollars and cents format. This option is useful in accounting applications.

When no \$ is visible in the Message area, the GT Albert E. Spreadsheet will format the numeric data to as many significant decimal positions as will fit in the element. This option is useful when statistical data is needed.

### f8 -- Automatic Recalculation Function Key

This key turns the auto recalculation indicator on and off. When it is on (as indicated by a green reversed Y in the Message area), the GT Albert E. Spreadsheet automatically calculates the entire spreadsheet based on the entry or calculation being worked on. When it is off (the green Y turns to a red N), the GT Albert E. Spreadsheet does not automatically recalculate the spreadsheet. In this mode, the GT Albert E. Spreadsheet will place the new data into the spreadsheet, but will wait until the auto recalculation switch is turned on to do the calculation of the spreadsheet.

The best way to find out how these two functions work is to use them.

Position the cursor at A01 (use f6 or the cursor control keys). Now press f4.

Notice what happens to the numbers on the screen. Now press f4 again. The numbers change again.

Enter new data in A01, B01, C01, and D01. Notice that the GT Albert E. Spreadsheet uses the data entered to recalculate the columns and rows which were created using the f7 key earlier. This happens because the Automatic recalculation indicator is on (Green Y).

Press f8 now. The green Y will change to a red N. Now enter some data in A01, B01, C01, and D01. Notice that no calculations are performed. The data is placed in the appropriate elements. Press f8 again and the GT Albert E. Spreadsheet will recalculate the spreadsheet and change the red N to a green Y.

#### SUMMARY

This completes the self-teaching portion of this manual. Experiment with the GT Albert E. Spreadsheet at this point. Try all of the functions, use the INST/DEL key to correct errors and back out of functions. Remember, the more you use the GT Albert E. Spreadsheet, the more you'll learn about it. In no time you'll be an expert at it.

#### FUNCTION SUMMARY

This section is a reference guide in using all the functions of the GT Albert E. Spreadsheet. It is presented in a format designed for easy reference.

Each function is identified by a function key and description. The messages, acceptable responses, and an explanation of how the GT Albert E. Spreadsheet handles each response are presented in detail.

Limitations and rules for use are outlined in the explanation section of each function.

This section should be used as an aid in working with the GT Albert E. Spreadsheet. In using the GT Albert E. Spreadsheet, refer to the Function Summary as a quick reference when you run into a problem.

Function Key	Function Performed
-----	-----
f1	Title -- Spreadsheet, Rows and Columns
f2	Title -- Same as f1 except spreadsheet can be re-titled using this function.
f3	File and Spreadsheet Management
f4	Numeric Format Indicator
f5	Data Entry
f6	GOTO
f7	Calculation -- Row, Column, or Element
f8	Automatic Recalculation Indicator

## f1 -- Title

Message -----	Acceptable Response -----	Explanation -----
1) Title	Up to 20 Characters	Name of Spreadsheet
2) Are You Sure?	Y	Yes, the name is correct.
	N	No, the name is wrong.
	INST/DEL	Back out of Title function.
3) Row or Column	R	Begin Titling Rows at current Row.
	C	Begin Titling Columns at current Column.
	INST/DEL	Back out of Title function.
4) Row	f5	Enter a 4 position Row name. (INST/DEL to correct)
	CURSOR-UP or CURSOR-DOWN	Moves cursor up or down to the next Row.
	INST/DEL	Back out of Row option to Message 3 above.
5) Column	f5	Enter a 5 position Column name. (INST/DEL to correct)
	CURSOR-RIGHT or CURSOR-LEFT	Moves the cursor right or left to the next column.
	INST/DEL	Back out of the Column option to Message 3 above.

f2 -- Re-Name Spreadsheet -- Same as f1

## f3 -- File and Spreadsheet Management

Message -----	Acceptable Response -----	Explanation -----
1) New	N	Erase the current spreadsheet and start fresh.
Load	L	Load from tape or disk a spreadsheet that has been previously saved.
Save	S	Save the current spreadsheet to tape or disk using the Title as entered in f1 or f2 functions to identify the file being saved.
Print	P	Print the current Spreadsheet 6 columns at a time to the highest column with data in it.
Quit	Q	Quit the GT Albert E. Spreadsheet.
	INST/DEL	Back out of f3 function.
2) Are You Sure? (When N is Selected)	Y	Create a new spreadsheet.
	N	Go back to Message 1.
	INST/DEL	Back out of the f3 function.

- 3) Title (When L is Selected) Up to 20 character Name of a Spreadsheet Name of a spreadsheet previously saved.
- 4) Are You Sure? (When L is Selected) Y Yes, the name is correct.  
N No, the name is not okay.  
INST/DEL Back out of the f3 function.
- 5) Is Device Ready? Y Yes -- proceed to Print, Load or Save.  
N No action.  
INST/DEL Back out of Print, Save or Load option to Message 1.

#### f4 -- Select Numeric Format

Message -----	Acceptable Response -----	Explanation -----
None	None	Each time f4 is pressed, it turns the \$ format switch on or off. When the \$ is on, numeric data is displayed in dollars and cents format.  When the \$ is not on, numeric data is displayed in as many decimal positions as space allows.

#### f5 -- Enter Data

Message -----	Acceptable Response -----	Explanation -----
	Up to 8 Numeric Characters (8 positions may include (-) or (.))	Enter numeric data.
	INST/DEL	If data is visible in box at the top of the screen, INST/DEL acts as a correction key which enables re-entry of the data.  If data is not visible in box at the top of the screen, INST/DEL backs out of the f5 function.

#### f6 -- GOTO a Row/Column

Message -----	Acceptable Response -----	Explanation -----
GOTO	Any valid element name formatted <u>R</u> <u>CC</u> where:  R = A - Z on 16K VIC 20 A - Z, 1 - 9 on VIC 20 with more than 16K and on Commodore 64.  CC = 01-19 on 16K VIC 20 01 - 47 on VIC 20 with more than 16K 01 - 96 on Commodore 64	The GT Albert E. Spreadsheet edits the 3 positions entered and, if the entry is acceptable, positions the cursor at the Row and Column indicated. If the entry is not acceptable, the GT Albert E. Spreadsheet closes the box and waits for a good response.

INST/DEL

If an R CC combination is being entered, the GT Albert E. Spreadsheet closes the box and waits for a good response. Otherwise, INST/DEL is the way to back out of f6.

Total

T

Take a total of the values between Operand A and Operand B and store the result where the cursor is pointing.

aVerage

V

Take the mean average of the values between Operand A and Operand B and store the result where the cursor is pointing.

Percent

P

Calculate the percentage that Operand A is of Operand B and store the result where the cursor is pointing.

Change

C

Calculate the percent change of Operand A to Operand B and store the result where the cursor is pointing.

High

H

Find the high value of the range of values between Operand A and Operand B and store the result where the cursor is pointing.

Low

L

Find the low value of the range of values between Operand A and Operand B and store the result where the cursor is pointing.

B

Blank out the Row, Column or Element where the cursor is pointing.

Left-Arrow

Erase the calculation indicator on this Row or Column.

INST/DEL

Back out of Message 1 to Message 2.

# f7 -- Calculate a Row, Column, or Element

Message -----	Acceptable Response -----	Explanation -----
1) Row	R	Calculate the Row to which the cursor is pointing.
Column	C	Calculate the Column to which the cursor is pointing.
Element	E	Calculate the Element to which the cursor is pointing.
	INST/DEL	Back out of f7.
2) Add	A	Add Operand A to Operand B and store the result where the cursor is pointing.
Subtract	S	Subtract Operand B from Operand A and store the result where the cursor is pointing.
Multiply	M	Multiply Operand A by Operand B and store the result where the cursor is pointing.
Divide	D	Divide Operand A by Operand B and store the result where the cursor is pointing.

### 3) A op B

A and B are:

1. Pos. Row -- If R was chosen in Message 1.
2. Pos. Column -- If C was chosen in Message 1.
3. Pos. Element -- If E was chosen in Message 1.

# = Constant  
A = Operand A  
B = Operand B  
Op = Operator  
+ = Add  
- = Subtract  
\* = Multiply  
/ = Divide  
S = Total  
M = Average  
% = Percent Change  
H = High  
L = Low

INST/DEL

#### Limitations\*

1. Row, Column, or Element Operands must be in the acceptable range of values for the computer being used.
2. A constant can only be used for Add, Subtract, Divide, or Multiply and can be used in the Subtract and Divide options as Operand B only.
3. A constant must be between minus 999.99 and plus 999.99.
4. In the Divide option, Operand B cannot be 0.

Correction if entry of a Row, Column or Element is in error.

Back Out to Message 2 if no Row, Column or Element information is present.

\* NOTE: Limitations -- If you try to enter a value which exceeds one of these limitations, the GT Albert E. Spreadsheet will not accept it and will wait for a valid entry.

### f6 -- Automatic Recalculation Indicator

Message -----	Acceptable Response -----	Explanation -----
None	None	This key controls the auto recalculation indicator.
		When it is on, the spreadsheet elements are automatically recalculated after every f5 (entry) or f7 (calculation) operation.
		The order of the calculation is: 1. All Column calculations first, then 2. All Row calculations.

## APPENDIX A

### Common Problems In Using The GT Albert E. Spreadsheet

#### f1 Titles:

When using this function, remember two important rules:

1. To enter Row or Column titles, the f5 key signals entry; the GT Albert E. Spreadsheet will wait for f5 before allowing entry.
2. The escape from this function is INST/DEL. Be sure that the last key you press is INST/DEL in order to exit from f1.

#### f3 Spreadsheet Management:

If you specify disk or printer during the use of this function and such a device is not part of your system or is not ready, you'll get a message, "DEVICE NOT PRESENT IN ....". Be sure the device is present and ready before specifying it in f3!

#### f5 Numeric Data Entry:

The GT Albert E. Spreadsheet will only accept 8 numeric characters (including (-) and (..)) in this function. Check the number you are entering for accuracy before pressing RETURN.

#### f6 GOTO:

The GT Albert E. Spreadsheet will not accept a Row value greater than 96 on the Commodore 64, greater than 49 on the VIC 20 with more than 16K, or greater than 19 on the VIC 20 with a 16K expander.

#### f7 Calculation:

This is the most complex of all the functions. Follow the rules as outlined in the FUNCTION SUMMARY.

Be careful of the following:

##### Row Column Element

Row response will calculate a new Row and place the result in the Row where the cursor is pointing. Use this option if you want a whole Row calculated; otherwise, use Element.

Column -- Same as caution for Row.

Element -- Remember, the GT Albert E. Spreadsheet does not remember Element calculations. That is, the calculation is performed once and will not be performed during recalculation.

Add versus Total

To avoid confusion, remember that the Add option takes the sum of two entities; the Total option takes the sum of a range of values.

Constant Calculations

Remember:

1. The only way the GT Albert E. Spreadsheet knows enough to expect a constant is by you entering a #. If you fail to enter # and begin to enter a number, the GT Albert E. Spreadsheet will assume that number to be a Row label, Column label, or Element label. Unexpected results will occur.

2. Both operands in the calculations may be constants when adding, subtracting, multiplying, or dividing. When only one constant is used, only the second operand can be a constant when dividing or subtracting. Even if you enter a constant as the first operand, the GT Albert E. Spreadsheet will use it as the second. Also, the GT Albert E. Spreadsheet does not remember two-constant calculations when recalculating the spreadsheet. These are limitations in the GT Albert E. Spreadsheet and can result in unexpected data if you're not careful.



Automatic Recalculation

Remember that, if the automatic recalculation switch is off, only data entry or a two-constant calculation will change the spreadsheet and only for the Column, Row, or Element to which the cursor is pointing. Calculation functions performed in this mode will not cause new values to be displayed until the switch is turned on!

## APPENDIX B

Equipment Supported By This Product

VIC 20 with Minimum 16K Expander

VIC Datasette

Indus GT Disk Drive for Commodore

VIC 1540/1541 Disk Drive

VIC 1515/1525 Printers or Equivalent

Commodore 64\*

\* NOTE: This product does not support use of a Commodore 64 with an unmodified 1540 disk drive. Commodore 64 users should operate this product with an Indus GT Disk Drive for Commodore, a 1541 disk drive or a ROM-modified 1540 disk drive.

# APPENDIX C

## Sample GT Albert E. Spreadsheet Applications

The following pages contain various home and business uses of the GT Albert E. Spreadsheet. For practice, try to reproduce them on your computer.

### ATARI COMPETITION

	BKOUT	ASRD	ENVR	BATTL	TOTAL
BILL	880	12390	234000	300	247570
SIS	450	25600	24560	230	50840
DAD	700	24000	23000	450	48230
MOM	345	13450	123890	100	137785
WIN	880	25600	234000	450	247570
LOSE	345	12390	23000	100	48230

### SALES ANALYSTS

	COST	+12%	-12%	DIFF1	+20%	-20%
ITM1	69.95	78.34	61.56	16.79	83.94	55.96
ITM2	59.98	67.18	52.78	14.40	71.98	47.98
ITM3	45.75	51.24	40.26	10.98	54.90	36.60
ITM4	39.95	44.74	35.16	9.59	47.94	31.96
ITM5	29.95	33.54	26.36	7.19	35.94	23.96
ITM6	19.95	22.34	17.56	4.79	23.94	15.96
TOTL	265.53	297.39	233.67	63.73	318.64	212.42
+TAX	281.46	315.24	247.69	67.55	337.75	225.17
DIFF	15.93	17.84	14.02	3.82	19.12	12.75

### DIFF2 DIFF3

ITM1	27.98	11.19
ITM2	23.99	9.60
ITM3	18.30	7.32
ITM4	15.98	6.39
ITM5	11.98	4.79
ITM6	7.98	3.19
TOTL	106.21	42.48
+TAX	112.58	45.03
DIFF	6.37	2.55

## HOME BUDGET -- 1983

	JAN	FEB	MAR	APR	MAY	JUN
FOOD	525.00	525.00	525.00	525.00	525.00	525.00
MRTG	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00
HEAT			450.00			450.00
TELE	35.00	25.00	20.00	30.00	35.00	40.00
ELEC	115.50	82.50	66.00	99.00	115.50	132.00
TUIT	275.00	275.00	275.00	275.00	275.00	275.00
TAX			1200.00			1450.00
CAR	280.00	200.00	160.00	240.00	280.00	320.00
LEIS	100.00	100.00	100.00	100.00	100.00	100.00
CLTH	80.50	57.50	46.00	69.00	80.50	92.00
MISC	75.00	75.00	75.00	75.00	75.00	75.00
TOTL	2486.00	2340.00	3917.00	2413.00	2486.00	4459.00
SLRY	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
SAVE	1714.00	1860.00	283.00	1787.00	1714.00	-259.00
	JUL	AUG	SEP	OCT	NOV	DEC
FOOD	525.00	525.00	525.00	525.00	525.00	525.00
MRTG	1000.00	1000.00	1000.00	1000.00	1000.00	1000.00
HEAT			500.00			550.00
TELE	30.00	45.00	25.00	20.00	30.00	45.00
ELEC	99.00	148.50	82.50	66.00	99.00	148.50
TUIT	275.00	275.00	275.00	275.00	275.00	275.00
TAX			1200.00			1450.00
CAR	240.00	360.00	200.00	160.00	240.00	360.00
LEIS	100.00	100.00	100.00	100.00	100.00	100.00
CLTH	69.00	103.50	57.50	46.00	69.00	103.50
MISC	75.00	75.00	75.00	75.00	75.00	75.00
TOTL	2413.00	2632.00	4040.00	2267.00	2413.00	4632.00
SLRY	4200.00	4200.00	4200.00	4200.00	4200.00	4200.00
SAVE	1787.00	1568.00	160.00	1933.00	1787.00	-432.00

#### **NOTICE**

**Indus System Inc. reserves the right to make improvements in the product described herein at any time and without notice.**

#### **DISCLAIMER**

**Indus Systems Inc. shall have no liability or responsibility to the purchaser or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused directly or indirectly by this manual or its use, including but not limited to any interruption in service, loss of business and anticipatory profits or consequential damages resulting from the use of this product.**